Gymea Technology High School
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7 Technology A

Task 2: Design Project Stage 2

Due Date: 5 Jun 2024

Task Distributed: 22 May 2024 **Unit**: Engineering Systems

Task Type: Design Project **Task Weighting**: 45%

Outcomes: TE4-1DP; TE4-2DP, TE4-3DP, TE4-8EN

Task Description

PART A - CoSpaces Project

You are to work in teams to develop and construct a Virtual 3D Amusement Park using CoSpaces based on your plan from Assessment Task 1. Your team-based Amusement Park must demonstrate the following:

- A unique amusement park them
- Four different types of rides in separate scenes of CoSpaces.
- A roller coaster with at least 3 different points of height (max. 15 m) and length no shorter than 30 m.
- An example of Kinetic Energy to transfer an object (utilising its own moving energy)
- An example of Potential Energy
- Coding elements to include:
    - loops,
    - conditional statements
    - force
- Environmental Elements:
    - an object to initiate force upon another object eg: Push of a button moving from one scene to the next and swapping cameras
    - Gravitational Pull of 9.81m/s/s (Gravity acceleration of objects)
    - Additional Scenes
    - First Person view of the theme park and rides
- Newton's Laws of Motion portraying:
    - The law of Inertia
    - The Law of Force (Force = Mass x Acceleration)
    - The Law of Action & Reaction

PART B - Design Folio

You will be required to submit a portfolio on behalf of the group which will include:

- **Production and Implementation:** a screen recording of the final VR Simulation of your Theme Park and Walk through of the 1st Person Experience
- **Testing:** methods used to test your VR project
- **Evaluation of** your final project and should include:
    - A judgement the effectiveness of your final project in relation to the initial idea proposed
    - Any problems your group faced and how the design changed during the construction process
    - Your individual contribution towards the task

A Design Portfolio scaffold will be provided.

NESA Glossary of Key Words

Understand the verb associated with the task. The verb will provide an understanding of the detail needed to successfully complete the task.

- **Evaluate:** Make a judgement based on criteria; determine the value of

Details of Submission

GROUP BASED SUBMISSION

- You are required to create a screen recording of a walk through of your Amusement Park and export this as an .mp4 file.
- Use the 'Design Portfolio' Scaffold to ensure you complete all design stages including:
    - Production and Implementation and
    - Testing and Evaluation.

Submit your portfolio in Google Classroom.

Teacher Feedback and Student Self-Reflection

- The task will typically be returned to students within **14 days** of the due date.
- Information on how to improve will be provided through grading and online comments within Moodle. Students can clarify or seek further feedback by speaking with their teacher or the assessment marker.
- You will also receive feedback on your literacy performance based on the criteria in the school's literacy marking rubric.
- Upon return of the task, students will also be expected to complete a self-reflection. Students can access this self-reflection form using the link: https://forms.gle/Egjr7FEFhAmGjQzP6

How does this link to my learning?

- It is an assessment of the learning completed within the Engineered Systems unit
- It will provide feedback on my understanding of concepts within the Engineered Systems unit
- It links to the following report outcomes:
    - communicates ideas effectively
    - applies an evaluates design processes to develop creative solutions to problems
    - plans and manages the production of designed solutions
    - uses and applies tools, materials and techniques in a safe and responsible manner
    - understands and applies the concepts of force, motion and energy in the development of design solutions

Assessment Procedures

All students should be fully aware of the School Assessment Procedures for their year group. These were provided at the beginning of the school year and are available off the school website under the Learning menu for each year group.

Marking Criteria

PART A - CoSpaces Project				
	1	**2**	**3**	**4**
3D environment / Landscape	Limited environment / landscape displayed.	Environment/ Landscape incorporates a clear theme with few objects (at least 2) created	Environment/ Landscape incorporates a clear theme with some objects (3 or 4) created / added to simulate a real life experience	Environment/ Landscape incorporates a clear theme with several objects (5 or more) created / added to provide a real life experience
Coding	Limited Coding Elements applied	Some Coding Elements (data types or control structures) or demonstrate Principles of Physics.	Range of coding elements include moderate complexity(data types and control structures) and Principles of Physics applied.	Range of coding elements (data types and control structures and multiple functions) include high complexity and Principles of Physics.
VR Simulation & UX	Limited attempt to simulate real-life UX.	Some elements of forces displayed including: - gravity, inertia (push/pull). - UX simulates real life experience - effects (camera angles, activities)	Most elements of forces displayed including: - gravity, inertia (push/pull), F=MA. - UX simulates real life experience throughout the Amusement park - a variety of effects (audio, camera angles, activities) to help aid real life experience.	All elements of forces displayed including: - gravity, inertia (push/pull), F=MA. - UX simulates real life experience throughout the Amusement park - a variety of effects (audio, camera angles, activities) to help aid real life experience.
PART B - Design Folio				
Producing & Implementing	Limited detail displayed	Basic Level of Design Principles applied. Considers SOME aspects of design	Sound Level of Design Principles applied. Considers MOST aspects of the problem: criteria of success, design factors and specific target audience analysis.	High Level of Design Principles applied. Considers ALL aspects of the problem in detail: criteria of success, design factors and specific target audience analysis.
Testing & Evaluation	Limited testing &/or results displayed.	Basic testing and results portrayed	Most testing and results portrayed Relevant evaluation of completed product and individual contribution.	A range of testing and results portrayed in comprehensive detail addressing ALL aspects. Detailed evaluation of completed product and individual contribution

TOTAL MARKS:	**/ 20**

Literacy Outcomes	Elementary achievement You have:	Limited achievement You have:	Satisfactory achievement You have:	High achievement You have:	Outstanding achievement You have:
	0	0.25	0.5	0.75	1
Vocabulary *Uses technical vocabulary to explain concepts and/or range of precise and appropriate words for effect*	Very limited response. Few content words used.	Only simple words are used.	Some precise and technical words are used.	Sustained use of precise and technical words.	Sustained, consistent and fluent use of precise and technical words.
Punctuation *Use of correct and appropriate sentence and other punctuation for effect, and to aid in reading of the text*	No evidence of correct sentence punctuation.	Sentence punctuation is correctly used in at least one place - *one sentence is punctuated correctly.*	Some correct sentence level punctuation (at least 50%). May attempt other punctuation where it is required.	Mostly correct sentence level punctuation (80%) and at least two correct examples of other punctuation.	Writing contains accurate use of all applicable punctuation.
Sentences & Cohesion *The intentional construction of a variety of sentences to match purpose and audience, and the control of multiple sentence threads across the whole text.*	No clear evidence of sentences: a list of words OR text fragments.	At least one sentence is used correctly. Some meaning can be construed from the text.	Some correct formation of sentences. Mainly uses simple and compound sentences, but may attempt more complex structures.	Most sentences are correct. Range of sentence types and connectives are evident, but with varied effectiveness.	All sentences are correct, effective and controlled, and include a range of sentence types and connectives (complex sentences and other sophisticated structures)
Paragraphs *Paragraphs are used to effectively structure information and partition events and ideas*	No correct use of paragraphing; may be a block of text or random breaks.	Ideas are separated; paragraphs may contain some unrelated ideas.	At least ONE paragraph is well structured and develops an idea	Writing is organised into paragraphs that assist the reader to digest chunks of the text, but may not be linked or executed effectively.	All components of the paragraphs are evident and paragraphing is consistent and well-developed across the whole text.
Text Structure *Uses features of the appropriate text type*	No evidence of the structural features of the appropriate text type. *No attempt to write in the appropriate text type and/or response is off task.*	Minimal evidence of the structural features - *1 component evident* - of the appropriate text type.	Some evidence of the structural features - *2 components evident* - of the appropriate text type.	Substantial evidence of the structural features - *all components evident but there may be some lapses* - of the appropriate text type.	Coherent and controlled use of **all** the appropriate structural features of the text type.
	Level of response is well below syllabus expectation	Level of response is below syllabus expectation	Level of response is equivalent to syllabus expectation	Level of response is above syllabus expectation	Level of response is well above syllabus expectation
					/5
				TOTAL MARKS:	**/25**